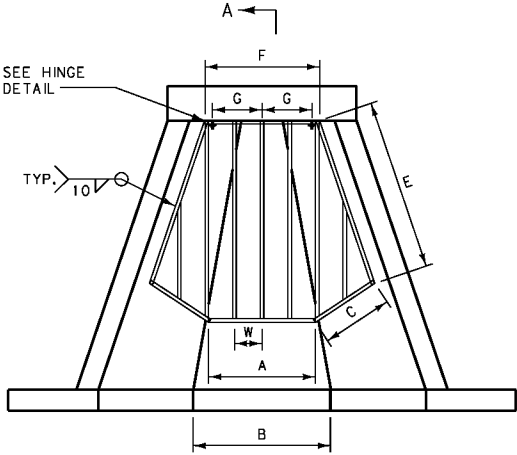


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PLAN VIEW

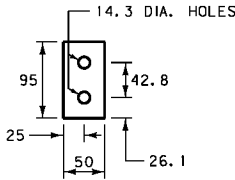
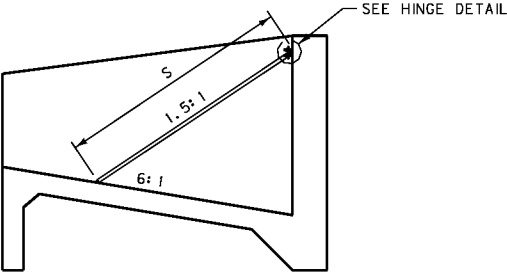
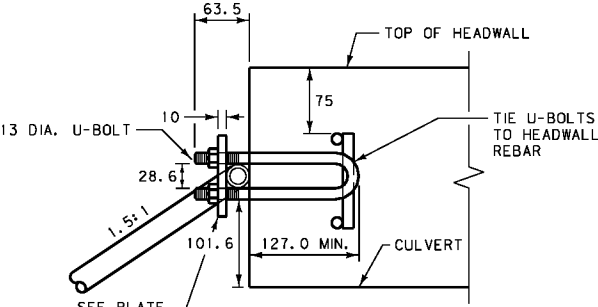


PLATE DETAIL



SECTION A-A



HINGE DETAIL

CSP									
CUL VERT DIA. D	DIMENSIONS								19 DIA. GSP OR #16 REBAR *
	B	A	C	E	F	S	W	G	
450	450	363	226	707	244	841	110	70	5956
450	750	601	210	738	244	841	140	82	6160
450	1050	838	195	783	244	841	131	82	7498
600	600	472	326	857	396	1061	152	113	7699
600	900	695	308	887	396	1061	180	140	7983
600	1200	921	293	924	396	1061	155	116	9696
750	750	582	427	1009	549	1280	143	235	11 579
750	1050	677	408	1036	549	1280	165	235	11 378
750	1350	1015	390	1070	549	1280	183	235	11 805
900	900	692	527	1161	701	1500	174	305	13 777
900	1200	1207	509	1186	701	1500	192	305	14 441
900	1500	1113	491	1216	701	1500	171	302	16 203
1050	1050	802	628	1314	853	1719	204	366	15 895
1050	1350	1009	607	1338	853	1719	180	305	18 450
1050	1650	1216	588	1466	853	1719	192	335	18 870
1200	1200	911	725	1466	1006	1942	189	457	20 812
1200	1500	1116	707	1491	1006	1942	201	457	21 068
1200	1800	1320	689	1515	1006	1942	180	457	24 198

RCP									
CULVERT DIA. D	DIMENSIONS								19 DIA. GSP OR #16 REBAR *
	B	A	C	E	F	S	W	G	
450	450	387	244	786	244	933	119	79	6517
450	750	652	226	823	244	933	152	82	6715
450	1050	914	210	875	244	933	140	82	8245
600	600	494	348	954	396	1170	162	122	8382
600	900	750	329	988	396	1170	143	104	10 305
600	1200	997	311	1030	396	1170	168	128	10 561
750	750	619	451	1122	549	1408	152	235	12 479
750	1050	857	430	1155	549	1408	174	235	12 588
750	1350	1094	415	1192	549	1408	159	235	14 768
900	900	735	555	1292	701	1649	183	305	14 883
900	1200	963	533	1323	701	1649	165	290	17 380
900	1500	1195	515	1353	701	1649	183	305	17 468
1050	1050	850	658	1460	853	1887	174	305	19 766
1050	1350	1076	637	1487	853	1887	189	335	20 025
1050	1650	1302	619	1521	853	1887	204	366	20 297
1200	1200	966	759	1631	1006	2125	198	457	22 476
1200	1500	1189	741	1658	1006	2125	177	457	26 018
1200	1800	1411	719	1686	1006	2125	192	457	25 960

DIMENSIONS AND QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.

NOTES:
PAINT ALL WELDS AND OTHER NON-GALVANIZED PARTS IN ACCORDANCE WITH SECTION 710 OF THE STANDARD SPECIFICATIONS.
USE OF PIPE OR REBAR FOR TRASHGUARD TO BE DETERMINED BY THE ENGINEER.
W = CENTER TO CENTER PIPE OR REBAR SPACING.
TWO 13 DIA. U-BOLT AND PLATE ASSEMBLIES NEEDED PER TRASHGUARD.

* 19 mm DIA. SCHEDULE 80 GALV. STEEL PIPE (GSP)
OR
#16 REINFORCING BAR (REBAR = 1.552 kg/m)

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

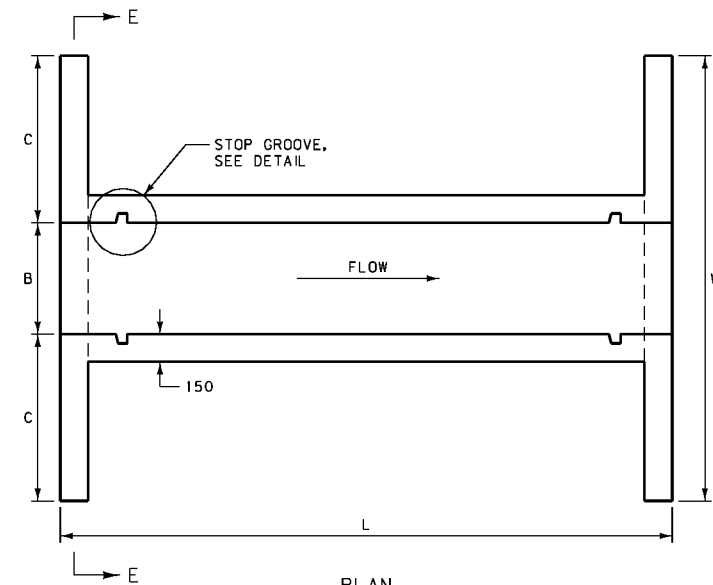
DETAILED DRAWING

REFERENCE DWG. NO. STANDARD SPEC. 615-02 SECTION 615

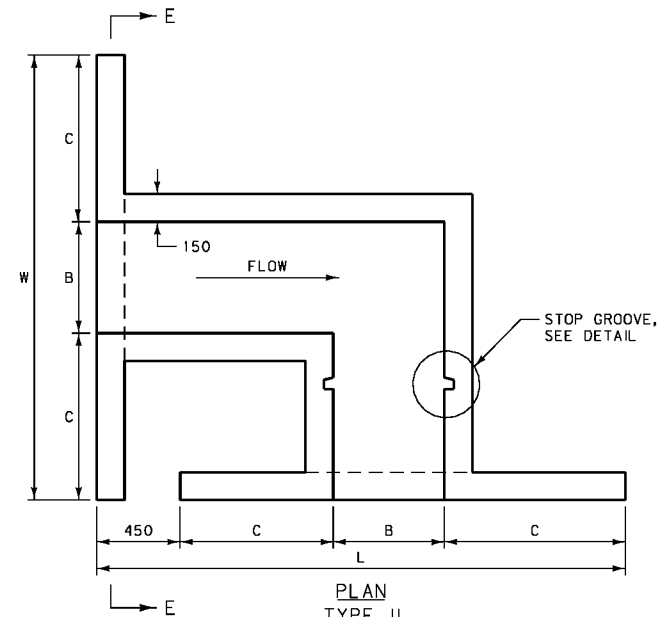
TRASHGUARD FOR CONCRETE IRRIGATION INLET AND OUTLET TRANSITION STRUCTURES

EFFECTIVE: AUGUST 1999

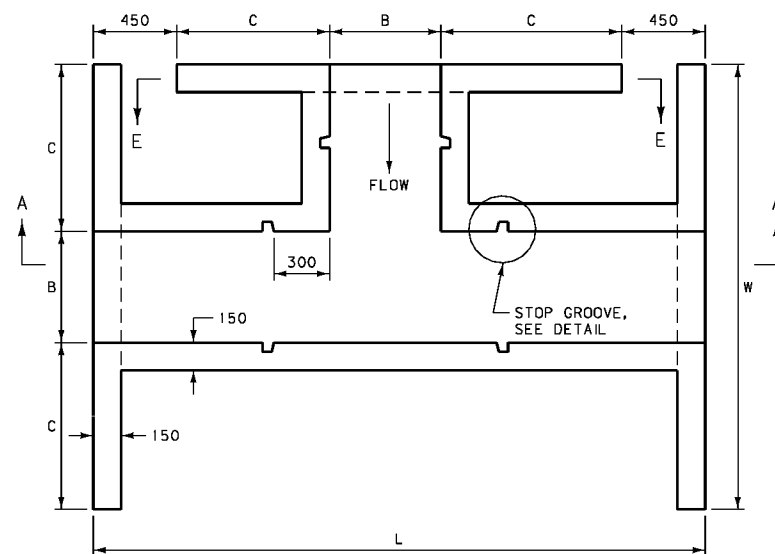
MONTANA DEPARTMENT OF TRANSPORTATION CADD



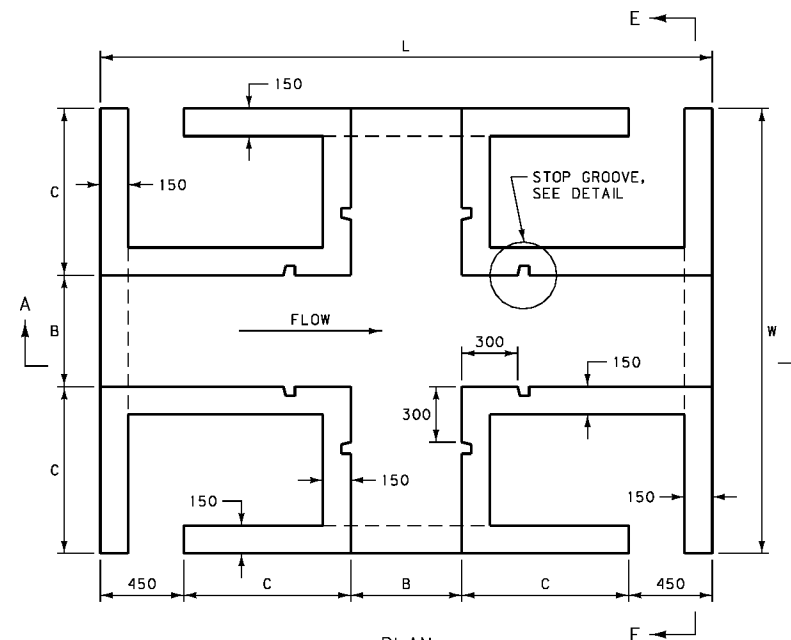
PLAN
TYPE I



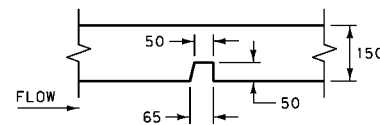
PLAN
TYPE II



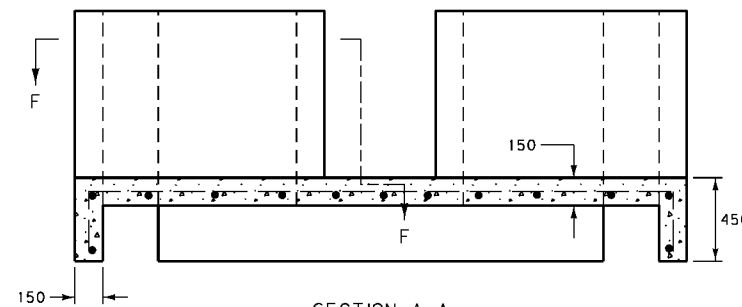
PLAN
TYPE III



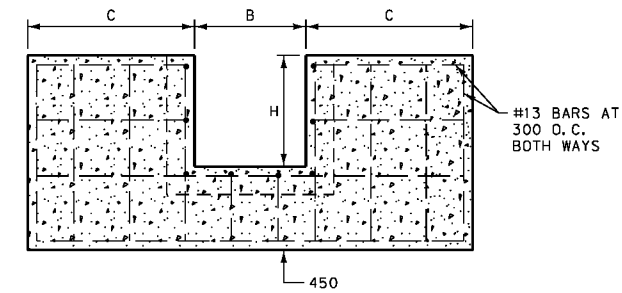
PLAN
TYPE IV



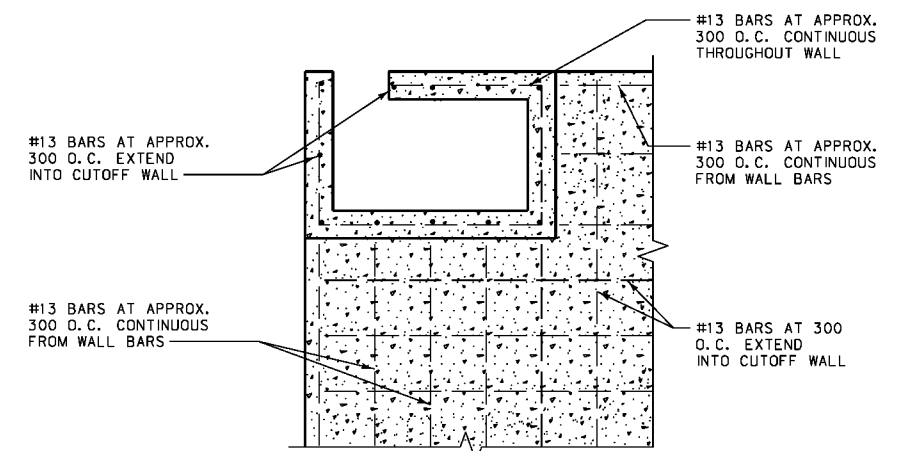
STOP GROOVE DETAIL



SECTION A-A



SECTION E-E



SECTION F-F

DIMENSIONS AND QUANTITIES							
	B	C	H	L	W	"DD" CONC OR EQUAL (m ³)	REINF. STEEL (kg)
TYPE I	600	900	600	1850	2400	1.1	54.7
	750	1050	600	1850	2850	1.3	60.7
	900	1200	750	1850	3300	1.6	80.2
TYPE II	600	900	600	2850	2400	1.4	69.8
	750	1050	600	3300	2850	1.8	84.2
	900	1200	750	3750	3300	2.4	118.1
TYPE III	600	900	600	3300	2400	2.0	98.7
	750	1050	600	3750	2850	2.5	117.6
	900	1200	750	4200	3300	3.3	164.3
TYPE IV	600	900	600	3300	2400	2.5	121.1
	750	1050	600	3750	2850	3.0	144.4
	900	1200	750	4200	3300	4.1	201.9

NOTES:

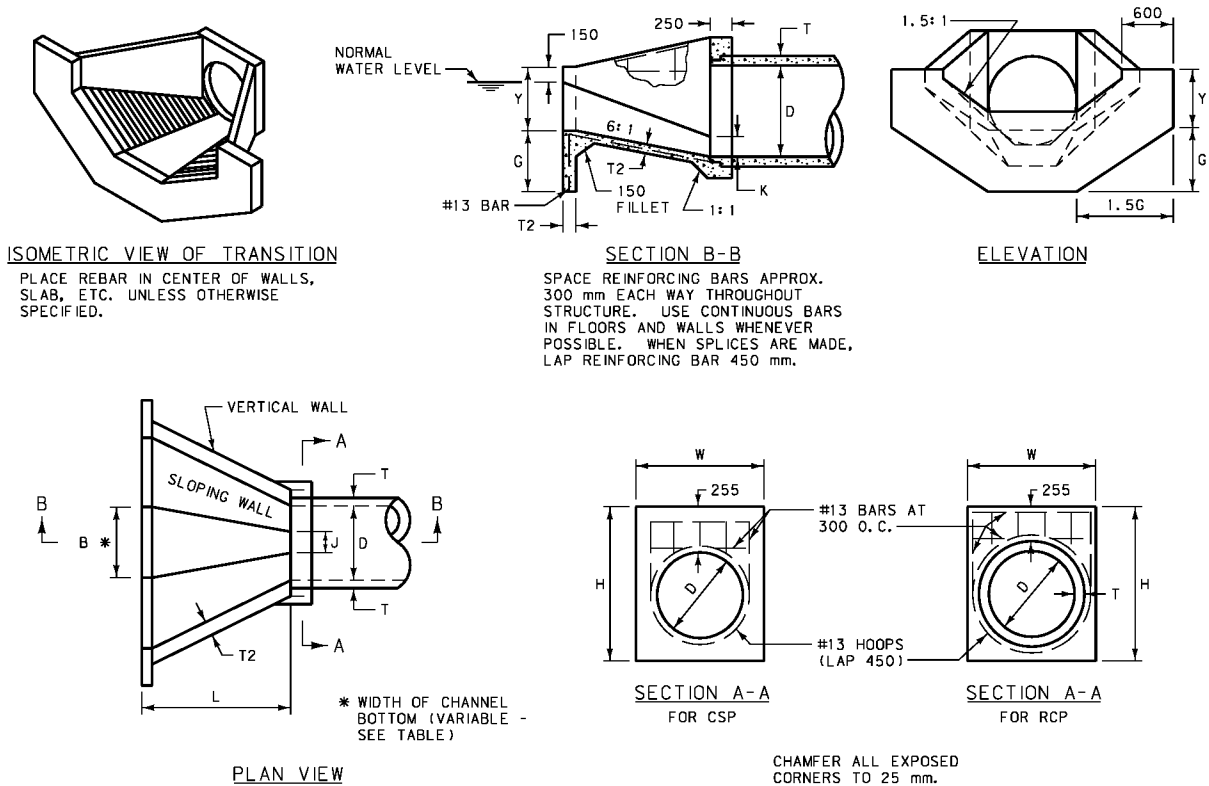
DIVISION BOX MAY BE MODIFIED IF DESIRED WITH DIMENSIONS SHOWN ON THE PLANS.

QUANTITIES ARE FOR ESTIMATING PURPOSES ONLY.

ALL DIMENSIONS ARE MILLIMETERS
(mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING	
REFERENCE	DWG. NO.
STANDARD SPEC.	615-04
SECTION 552, 615	
STANDARD CONCRETE IRRIGATION DIVISION BOXES	
EFFECTIVE: AUGUST 1999	
MONTANA DEPARTMENT OF TRANSPORTATION	MONTANA CADD

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INLET AND OUTLET CONCRETE TRANSITIONS FOR CSP																			
CULVERT		DIMENSIONS								QUANTITIES									
										B = D			B = D + 300			B = D + 600			
										B	CL" DD" CONC. (m³)	#13 REBAR (kg)	B	CL" DD" CONC. (m³)	#13 REBAR (kg)	B	CL" DD" CONC. (m³)	#13 REBAR (kg)	
DIA.	D	AREA (m²)	J	H	L	T2	W	K	Y	G	B	CL" DD" CONC. (m³)	#13 REBAR (kg)	B	CL" DD" CONC. (m³)	#13 REBAR (kg)	B	CL" DD" CONC. (m³)	#13 REBAR (kg)
450		0.159	140	1050	900	150	850	105	380	600	450	0.6	31.3	750	0.7	33.6	1050	0.7	36.3
600		0.283	180	1250	1200	150	1000	140	460	600	600	0.9	43.5	900	1.0	46.3	1200	1.0	49.0
750		0.442	240	1400	1500	150	1100	180	530	600	750	1.2	55.3	1050	1.2	58.5	1350	1.3	61.7
900		0.636	275	1550	1800	150	1300	210	610	750	900	1.6	75.8	1200	1.7	78.9	1500	1.7	83.5
1050		0.866	310	1750	2100	150	1500	240	690	750	1050	2.0	90.7	1350	2.1	95.7	1650	2.2	100.2
1200		1.131	365	1900	2400	200	1600	280	760	750	1200	3.1	116.6	1500	3.2	121.1	1800	3.4	125.2

INLET AND OUTLET CONCRETE TRANSITIONS FOR RCP																				
CULVERT		DIMENSIONS									QUANTITIES									
											B = D			B = D + 300			B = D + 600			
											B	CL"DD" CONC. (m³)	#13 REBAR (kg)	B	CL"DD" CONC. (m³)	#13 REBAR (kg)	B	CL"DD" CONC. (m³)	#13 REBAR (kg)	
DIA.	D	AREA (m²)	J	H	L	T	T2	W	K	Y	G	B	CL"DD" CONC. (m³)	#13 REBAR (kg)	B	CL"DD" CONC. (m³)	#13 REBAR (kg)	B	CL"DD" CONC. (m³)	#13 REBAR (kg)
450		0.164	140	1100	900	63.5	150	970	105	380	600	450	0.6	33.6	750	0.7	36.3	1050	0.8	38.6
600		0.292	185	1300	1200	76.2	150	1150	140	460	600	600	0.9	45.4	900	1.0	48.1	1200	1.0	50.8
750		0.456	230	1500	1500	88.9	150	1320	175	530	600	750	1.2	57.6	1050	1.3	60.8	1350	1.4	64.0
900		0.657	275	1700	1800	101.6	150	1500	215	610	750	900	1.6	78.9	1200	1.7	82.1	1500	1.8	86.6
1050		0.894	325	1900	2100	114.3	150	1680	245	690	750	1050	2.1	96.2	1350	2.1	100.7	1650	2.2	105.2
1200		1.167	370	2050	2400	127.0	200	1860	280	760	750	1200	3.1	121.1	1500	3.3	125.6	1800	3.4	130.2

NOTES:
INSTALL STRUCTURES OUTSIDE THE CLEAR ZONE.
PROVIDE TRASHRACKS WHEN REQUIRED. SEE DTL.
DWG. NO. 615-02.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING

REFERENCE DWG. NO.
STANDARD SPEC. 615-06
SECTION 615

CONCRETE IRRIGATION INLET
AND OUTLET TRANSITION FOR
RCP AND CSP PIPES

EFFECTIVE: AUGUST 1999

MONTANA DEPARTMENT OF TRANSPORTATION

MONTANA CADD